



UNITED STATES PATENT AND TRADEMARK OFFICE

A

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,207	01/30/2004	Yuichi Teramura	Q79651	5714
23373	7590	03/06/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			PAK, SUNG H	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 03/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/767,207

Applicant(s)

TERAMURA ET AL.

Examiner

Sung H. Pak

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's amendment filed 12/13/2005 has been entered. Claims 1-44 are now pending. All pending claims have been carefully reconsidered in view of the arguments set forth in the applicant's amendment. Up on further reconsideration, the ground of rejection provided in the previous office action for originally presented claims 1-24 is hereby maintained in this office action. The newly added claims 25-44 are rejected based on a new ground of rejection. Please refer to Response to Arguments for details.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 9-10, 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Blonder et al (US 5,448,672) as discussed in the previous office action.

Blonder discloses an optical device with all the limitations set forth in the claims, including: a package having a structure which allows sealing of an inside of the package (Fig. 1, column 2 lines 48-51); an optical fiber having a cladding (abstract), first and second ends, and a predetermined length, and being fixed to said package in such a manner that the first end of the optical fiber appears inside the package (Fig. 1, '16'); wherein said cladding is exposed in a vicinity of the first and second ends (Fig. 1-2; column 2 lines 28-33) and the optical fiber other

Art Unit: 2874

than a portion of the cladding in said vicinities is coated with a metal material (Fig. 2, column 2 lines 64-68);

wherein the packaged is hermetically sealed by solder (column 2 lines 59-60);

further comprising light emitting elements and/or light receiving elements, wherein the light emitting elements and/or the light receiving elements are optically connected to an end of the optical fiber (Fig. 1; column 2 lines 48-51).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blonder et al (US 5,448,672) in view of Murata et al (US 6,123,464) as discussed in the previous office action.

Art Unit: 2874

Blonder discloses an optical device with limitations set forth as discussed above, except it does not explicitly teach the use of Si-free solder and the interior of the package being filled with inert gas containing very small concentration of oxygen as claimed in the instant application.

On the other hand, Murata explicitly teaches the use of a hermetic seal solder that does not contain Si (column 4 line 62), and the package being filled with inert gas containing oxygen at a concentration of 1PPM or greater (column 6 lines 8-14). Such features are considered advantageous and desirable because it allows effective hermetic sealing of the optoelectronic package, and more efficiently protects fragile optical component from harsh environmental factors.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Blonder to have Si-free solder and inert gas disposed in the package with very small concentration of oxygen as taught by Murata.

Claims 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blonder et al (US 5,448,672) in view of Okazaki et al (US 2002/0090172 A1) as discussed in the previous office action.

Blonder discloses an optical device with limitations set forth in the claims as discussed above, including the use of a condensing lens to coupling light between the optical fiber and the optoelectronic device (column 2 lines 55-57 of Blonder), except it does not explicitly teach the use of plurality of single cavity semiconductor lasers with oscillation wavelength of 350 to 500nm, plurality of collimating lenses, as claimed in the instant application.

However, the use of plurality of single cavity semiconductor lasers with wavelength of 400nm and plurality of collimating lenses are well known in the art as taught by Okazaki (Fig. 1, paragraphs 0014-0016, 0081). Such features are considered advantageous and desirable in the art because plurality of lasers allow for high-bandwidth, multiple signal optical communications which provide high speed and robust optical communication, and the plurality of collimating lenses allow for efficient optical coupling between optical fibers and plurality of laser sources.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the Blonder device to have plurality of single cavity semiconductor lasers with oscillation wavelength of 350 to 500nm and plurality of collimating lenses, as taught by Okazaki.

Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blonder et al (US 5,448,672) as discussed in the previous office action.

Blonder discloses an optical device with limitations set forth in the claims as discussed above, except it does not explicitly teach the use of a resin coated second optical fiber coupled with the first optical fiber.

However, the use of a resin coated optical fiber for coupling with optical fibers used in optoelectronic packages is well known and common in the art. The use of a second (i.e. additional) optical fiber for coupling light signals out of/ into optoelectronic package is considered advantageous and desirable in the art since it allows for routing and transmission of optical signals via specialized optical fiber (e.g. polarization maintaining fiber, long-haul transmission fiber, etc) for robust optical communication applications.

Art Unit: 2874

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Blonder to have a resin coated second optical fiber coupled with the first optical fiber of the optoelectronic package.

Claims 25-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blonder et al (US 5,448,672).

Blonder discloses an optical device with limitations set forth in the claims as discussed above. However, it does not explicitly teach the length of the metallized portion being 100mm, the portion of the fiber located outside the package being 65mm to 75mm in length, the second end with cladding exposed is 40mm in length, and the optical fiber has overall length of 140mm or less as claimed in the instant application.

Nevertheless, the court has determined that “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) Since the general condition of the claim in the instant application is fully taught by Blonder et al. reference, the workable ranges of various portions of the optical fiber are not inventive, unless these ranges demonstrate criticality, in that there is a clear evidence these ranges provide distinct, unforeseen advantages over the prior art. MPEP 2144.05.

The length of the metallized portion being 100mm, the portion of the fiber located outside the package being 65mm to 75mm in length, the second end with cladding exposed being 40mm in length, and the optical fiber having overall length of 140mm or less would be considered advantageous and desirable to one of ordinary skill in the art at the time the invention

Art Unit: 2874

was made because it would provide optical fiber for interfacing with optoelectronic package that is: 1) securely sealed at the connecting portion, and 2) the portion of the fiber protruding from the package that is long enough for forming connector junction.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Blonder to arrive at the optimal fiber lengths stated above through routine experimentation.

Response to Arguments

Applicant's arguments filed 12/13/2005 have been fully considered but they are not persuasive.

Claims 1-2:

Starting on page 16 of the applicant's response, it is argued that "in contrast [to Blonder], ... claim 1 of the present application [claims] the cladding [that] is exposed only in the vicinity of the second end of the optical fiber and the entire optical fiber other than the portion in the vicinity of the second end is coated with a metal and/or inorganic material." (first full paragraph of page 16)

The examiner respectfully submits that claim1 merely recites, "wherein said cladding is exposed in a vicinity of the second end, and the optical fiber other than a portion of the cladding in said vicinity is coated with at least one of a metal and an inorganic material." (claim 1 of the present application) The claim does NOT recite "the entire optical fiber" must be coated as the applicant asserts. The claimed limitation is anticipated if "the optical fiber other than a portion

Art Unit: 2874

of the cladding in said vicinity” whether it is the entire fiber or a portion of the fiber “is coated...” Since Blonder clearly teaches the feature, as it is currently claimed in the instant application, the claim rejection based on Blonder is proper.

Further the applicant argues, “... Blonder et al., fails to teach or suggest the optical fiber module... in which the cladding is exposed only in the vicinity of one end of the optical fiber.” (second full paragraph of page 16)

The examiner respectfully submits that the claim merely recites, “wherein said cladding is exposed in a vicinity of the second end...” The claim does NOT recite that the cladding is exposed only in the vicinity of the second end. Conversely, the claim does not even recite whether the cladding in the first end is covered. Since Blonder fully discloses the claimed limitations of the present application as they are recited in the claims, the rejection is proper.

Next, the applicant argues, “the ends of the optical fiber are illustrated with wavy lines in Figures 1 and 2 of Blonder et al.” and that Blonder does not disclose the optical fiber having a “predetermined length” as recited in the claims. (last full paragraph of page 16)

The examiner respectfully submits that even though Blonder illustrates the optical fibers with “wavy lines” in the figures, the length of the optical fibers are necessarily finite. Further the length of the optical fiber (although Blonder does not explicitly state what the exact length would be) is “predetermined” because the optical fiber that is used in the Blonder’s device must be treated in an acid/ treatment bath (see columns 3-4 of Blonder et al.). One cannot treat an optical fiber that has non-finite, and undetermined length in a acid/treatment bath. As such, it would be

Art Unit: 2874

unreasonable and contrary to what is known in the art to interpret the optical fiber of Blonder to have a non-finite, undetermined length. Therefore, Blonder does disclose all the claimed limitations of the instant application and the rejection is proper.

In addition, the applicant argues that the metal coating in Blonder is not formed by sputtering. Therefore, the applicant reasons, “those skilled in the art would not have conceived of substantially removing the jacket in the entire optical fiber...” (first full paragraph in page 17)

The examiner respectfully submits that the optical fiber used in Blonder is a bare fiber that does not have jackets around the cladding. The only mention of fiber jacket in Blonder is when discussing the prior art optical fiber processing method (for sputtering deposition of metal). As discussed in column 3 lines 14-18 of Blonder reference, the optical fiber with cladding is directly put into the treatment bath. There is no mention of removing the jacket, because the fiber used in Blonder does not have any jacket. Thus, the claimed limitation of the present application, “wherein said cladding is exposed...” is fully anticipated by the disclosure of Blonder reference.

Claims 19-20:

The applicant argues that “Blonder fails to disclose or suggest degassing the inside of the package, as recited in claims 19 and 20.” (first full paragraph of page 18)

The examiner respectfully submits that Blonder explicitly discloses a method of hermetic sealing the optoelectronic package as discussed in the previous office action. The hermetic sealing of optoelectronic package involves either vacuum sealing the internal chamber of the

Art Unit: 2874

package, or placing non-reactive gas inside the package such that sensitive optoelectronic devices are not adversely affected by the environment inside the package. In either of the two cases, the gas that would have been present in the optoelectronic package prior to the hermetic sealing step would necessarily be drawn out in order to form a hermetic seal. Therefore, the recited limitations of the instant application is inherently anticipated by the disclosure of Blonder, and the rejection is proper.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

Art Unit: 2874

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571)272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sung H. Pak
Primary Patent Examiner
Art Unit 2874